IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT:	Gutierrez et al.		
SERIAL NO.:	10/727,941	Examiner:	A. Lang
FILED:	December 4, 2003	Art Unit:	1714
TITLED:	LUBRICATING OIL COMPOSITIONS		

Atty. Docket No.2003L007

Assistant Commissioner for Patents
Washington, DC 20231

BRIEF ON APPEAL

Sir:

This is an appeal from the decision of the Examiner to finally reject claims 1 through 22, all claims remaining in the above-identified patent application. This final rejection was presented in an Office Action mailed February 1, 2007. The Notice of Appeal was filed July 9, 2007. The period in which to file a Brief on Appeal has been extended two months, through and including November 9, 2007, by concurrently filed petition.

This brief is being filed in triplicate. It is requested that the requisite fee set forth in 37 CFR Section 1.17(f) be charged to Deposit Account No. 05-1710.

REAL PARTY IN INTEREST

All rights to the above-identified application were assigned from the named inventor to Infineum International Limited, a company incorporated in England, via an assignment recorded by the United States Patent and Trademark Office on November 5, 2007, at Reel 020067, Frame 0149. Infineum International Limited is the real party in interest to these proceedings.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences relating to this application and no decision in any other appeal or interference impacts the decision in the present appeal.

STATUS OF CLAIMS

The application now contains claims 1 through 22, as set forth in the attached Appendix. Claims 1 through 22, all claims remaining in this application, stand rejected, and the decision to reject each of claims 1 through 22 is being appealed.

STATUS OF AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION

An amendment to the claims addressing a rejection presented under 35 USC Section 112 was filed subsequent to final rejection and was not entered or considered by the Examiner. A copy of this amendment is attached to this Brief.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to lubricating oil compositions formulated with a combination of a specific class of high molecular weight polymer (an olefin copolymer incorporating a nitrogen-containing functional group), and a defined dispersant additive, having (1) a specified backbone molecular weight and (2) a specified "functionality" and/or backbone molecular weight distribution. Such combinations of components were found to provide lubricating oil compositions with improved performance characteristics in highly sooted environments, such as those present in modern heavy duty diesel (HDD) engines provided with exhaust gas recirculation (EGR) systems.

Claim 1, the first independent claim of the application, therefore claims a lubricating oil composition comprising a major amount of at least one of a Group I, Group II or Group III mineral oil of lubricating viscosity, or a mixture thereof (see Specification at page 5, lines 14 through 22); a minor amount of one or more high molecular weight polymers comprising olefin copolymers containing at least one moiety selected from alkyl amine, alkyl amide, aryl amine or aryl amide groups, nitrogen-containing heterocyclic groups or ester linkages (see Specification at page 6, line 18 through page 9, line 31); and a minor amount of dispersant comprising one or more nitrogen-containing dispersants that are the reaction product of (i) a polyalkenyl-substituted mono- or dicarboxylic acid, a polyalkenyl-substituted anhydride or a polyalkenyl-substituted

ester; and (ii) a polyamine; wherein at least one of the nitrogen-containing dispersants has a polyalkenyl moiety with a number average molecular weight of at least about 1800, and from about 1.3 to 1.7 mono- or dicarboxylic acid producing moieties per polyalkenyl moiety (see Specification at page 10, line 1 through page 19, line 16); and dispersant contributes at least about 0.08 wt. % of nitrogen to the lubricating oil composition (see Specification at page 19, lines 18 through 21).

Claim 2, which depends from Claim 1, requires the polyalkenyl moiety of the dispersant to have a number average molecular weight of from about 1800 to about 3000 (see Specification at page 13, lines 26 through 27). Claim 3, which depends from Claim 1, requires that the high molecular weight olefin copolymer comprises an ethylene-propylene copolymer grafted with maleic anhydride and derivatized with an aryl amine (see Specification at page 9, lines 5 through 8). Claim 4, which depends from claim 2, specifies that the total amount of diaryl amine moieties in the lubricating oil composition is from about 0.5 to 5 mmols/kg, and greater than about 50% of said diaryl amine moieties are derived from molecules having a number average molecular weight of greater than about 5000 (see Specification at page 9, lines 20 through 31). Claim 5 depends from claim 1 and requires that the claimed lubricating oil compositions further from about 6 to about 50 mmols of phenate surfactant per kilogram of finished lubricating oil (see Specification at page 22, lines 18 through 29). Claim 6, which depends from claim 5, requires that the dispersant comprises from about 1.3 to about 1.6 mono- or di-carboxylic acid producing moieties per polyalkenyl moiety (see Specification at page 10, line 20), and has a boron content of less than about 20 ppm (see Specification at page 19, lines 15 through 16). Claim 7, which depends from claim 1, requires the claimed lubricating oil compositions to have a sulfated ash content of less than about 0.5 wt. % (see Specification at page 33, lines 4 through 6).

Claim 8, the second independent claim of the application, claims a lubricating oil composition comprising a major amount of at least one of a Group I, Group II and/or Group III mineral oil of lubricating viscosity, or a mixture thereof (see Specification at page 5, lines 14 through 22); a minor amount of one or more high molecular weight polymers comprising olefin copolymers containing at least one moiety selected from alkyl amine, alkyl amide, aryl amine or aryl amide groups, nitrogen-containing heterocyclic groups or ester linkages (see Specification at page 6, line 18 through page 9, line 31); and a minor amount of dispersant comprising one or more nitrogen-containing dispersants that are the reaction product of (i) a polyalkenyl-substituted mono- or dicarboxylic acid, a polyalkenyl-substituted anhydride or a polyalkenyl-substituted

ester; and (ii) a polyamine; wherein at least one of the nitrogen-containing dispersants has a polyalkenyl moiety with a number average molecular weight of at least about 1800, and is derived from a polyalkene having a molecular weight distribution (M_w/M_n) of from about 1.5 to about 2; said dispersant being essentially chlorine-free (see Specification at page 15, lines 1 through 11).

Claim 9, which depends from Claim 8, requires the polyalkenyl moiety of the dispersant to have a number average molecular weight of from about 1800 to about 3000 (see Specification at page 13, lines 26 through 27). Claim 10, which depends from Claim 8 indicates that the dispersant contributes at least 0.08 wt. % of nitrogen to the lubricating oil composition (see Specification at page 19, lines 18 through 21). Claim 11, which depends from claim 8, requires that the high molecular weight olefin copolymer comprises an ethylene-propylene copolymer grafted with maleic anhydride and derivatized with an aryl amine (see Specification at page 9, lines 5 through 8). Claim 12, which depends from claim 11, specifies that the total amount of diaryl amine moieties in the lubricating oil composition is from about 0.5 to 5 mmols/kg, and greater than about 50% of said diaryl amine moieties are derived from molecules having a number average molecular weight of greater than about 5000 (see Specification at page 9, lines 20 through 31). Claim 13 depends from claim 8 and requires that the claimed lubricating oil compositions further from about 6 to about 50 mmols of phenate surfactant per kilogram of finished lubricating oil (see Specification at page 22, lines 18 through 29). Claim 14, which depends from claim 8, requires that the dispersant comprises from about 1.3 to about 1.6 mono- or di-carboxylic acid producing moieties per polyalkenyl moiety (see Specification at page 10, line 20), and has a boron content of less than about 20 ppm (see Specification at page 19, lines 15 through 16). Claim 15, which depends from claim 8, requires the claimed lubricating oil compositions to have a sulfated ash content of less than about 0.5 wt. % (see Specification at page 33, lines 4 through 6). Claim 17, which depends from claim 8, specifies that the high molecular weight olefin molecule is derived from an amorphous ethylene-propylene copolymer or a blend of an amorphous and a semi-crystalline copolymer (see Specification at page 9, lines 8 through 11), with a shear stability index (SSI) of from about 5 to about 30 (see Specification at page 9, lines 11 and 12, produced by simultaneous shearing and functionalizing, in an extruder (see Specification at page 9, lines 13 and 14; claim 18, which depends from claim 17, further requires the semi-crystalline ethylene-propylene copolymer to have a tapered structure and be produced in a tubular reactor (see Specification at page 9, lines 15 through 18.

Claim 19 is directed to a method of operating a diesel engine, which method comprises the step of lubricating a diesel engine with a lubricating oil composition of claim 1 (see Specification at page 2, lines 13 through 15). Claim 20, which depends from claim 19, further requires that the diesel engine be provided with an exhaust gas recirculation system (see Specification at page 2, lines 13 through 15). Claim 21 claims a method of operating a diesel engine (see Specification at page 2, lines 13 through 15), which method comprises the step of lubricating a diesel engine with a lubricating oil composition of claim 8; and claim 22, which depends from claim 21, further indicates that the diesel engine is provided with an exhaust gas recirculation system (see Specification at page 2, lines 13 through 15).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 4 and 12 stand rejected under 35 USC Section 112 for failing to particularly point and distinctly claim the subject matter which applicant regards as the invention. An amendment to the claims addressing this rejection was filed subsequent to final rejection and was not entered or considered by the Examiner. A copy of said Amendment is being submitted with this Brief and it is submitted that, upon entry of the amendments presented therein, the rejection presented under 35 USC Section 112 will be fully addressed.

Claims 1, 2, 5, 6 to 10, 13 to 15 and 19 to 22 were objected to as being directed to an invention not patentably distinct from claims 1 to 5, 10, 11 and 16 of commonly assigned U.S. Patent No, 6,869,919 B2 to Ritchie et al (hereinafter "the Ritchie et al. patent").

Claims 1, 2, 5, 6 to 10, 13 to 15 and 19 to 22 were rejected under 35 USC Section 102(e) as being anticipated by the Ritchie et al. patent.

Claims 1, 2, 5, 6 to 10, 13 to 15 and 19 to 22 were further rejected on the grounds of statutory obviousness-type double patenting as being unpatentable over claims 1 to 5, 10, 11 16 to 21 of the Ritchie et al. patent.

Claims 1 to 4, 6 to 12, 14 to 16, 19 and 21 were rejected under 35 USC Section 103(a) as being unpatentable over US Patent No. 6,583,092 to Carrick et al. (hereinafter "the Carrick et al. patent") in view of U.S. Patent No. 5,207,938 to Nalesnik (hereinafter "the Nalesnik patent").

Claims 5 and 13 were rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent and the Nalesnik patent, as described above, in further view of U.S. Patent No. 6,784,143 B2 to Locke et al. (hereinafter "the Locke et al. patent"), claim 17 was rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent and the Nalesnik patent, as described above, in further view of U.S. Patent No. 6,753,381 B1 to Mishra et al. (hereinafter "the Mishra et al. patent"); claim 18 was rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent, the Nalesnik patent, and the Mishra et al. patent, as described above, in further view of U.S. Patent No. 4,804,794 to Ver Strate et al. (hereinafter "the Ver Strate et al. patent"); and claims 20 and 22 were rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent and the Nalesnik patent, as described above, in further view of U.S. Patent No. 4,286,567 to Ueda et al. (hereinafter "the Ueda et al. patent").

ARGUMENT

Claims 4 and 12 stand rejected under 35 USC Section 112 for failing to particularly point and distinctly claim the subject matter which applicant regards as the invention. Specifically, it is alleged that the language "...the total amount of diaryl amine moieties in the lubricating oil composition..." renders the claim unclear since there is no prior reference to specific compounds in the lubricating oil composition. The Examiner suggested amendment of the claim language to receite "...a total amount of diaryl amine moieties...". Although Applicants submit that the present claim language is clear and unambiguous, Applicants are amenable to the suggested amended and agree to make such an amendment once the application is found to distinguish over the prior art.

Claims 1, 2, 5, 6 to 10, 13 to 15 and 19 to 22 were objected to as being directed to an invention not patentably distinct from claims 1 to 5, 10, 11 and 16 of commonly assigned U.S. Patent No, 6,869,919 B2 to Ritchie et al (hereinafter "the Ritchie et al. patent"). In accordance with 37 CFR Section 1.78(c), Appellant previously stated for the record, through their attorney, that the inventions claimed in the Ritchie et al. patent and the present application were commonly owned or subject to an obligation of assignment to the same "person" at the time the later invention was made. Therefore, the Ritchie et al. patent does not qualify as a reference under 35 USC Section 102(e), (f) or (g), and cannot form the basis for a rejection presented under 35 USC Section 103(a).

Claims 1, 2, 5, 6 to 10, 13 to 15 and 19 to 22 were rejected under 35 USC Section 102(e) as being anticipated by the Ritchie et al. patent. The invention presently claimed is directed, *inter alia*, to lubricating oil compositions containing a combination of high molecular weight olefin polymers derivatized with a nitrogen-containing moiety, and a selected class of dispersant having a combination of either a defined molecular weight and "functionality", or a combination of a defined molecular weight and molecular weight distribution. The Ritchie et al. patent is directed, *inter alia*, to lubricating oil compositions containing a dispersant having a specified percentage of non-basic nitrogen and a defined amount of basic nitrogen, in combination with a specified detergent, or a combination of a high molecular weight polymer, which may or may not be derivatized with a nitrogen-containing moiety, and a defined detergent.

The functionality of the dispersants of the Ritchie et al. patent is not specified and the functionality of the dispersant is in no way described as critical. The molecular weight distribution of the dispersants of the Ritchie et al. patent is not required to be within the scope of the present claims, and the dispersants used in the examples of the Ritchie et al. patent are not described with sufficient detail to determine whether said dispersants are within the scope of the present claims. There is nothing in the Ritchie et al. patent that would suggest, much less expressly disclose, that the presently claimed combination of specified dispersants and high molecular weight polymers would provide any improved performance in lubricating oil compositions. Therefore, Appellant submits that the Ritchie et al. patent fails to anticipate the claimed invention under Section 102.

Claims 1, 2, 5, 6 to 10, 13 to 15 and 19 to 22 were further rejected on the grounds of statutory obviousness-type double patenting as being unpatentable over claims 1 to 5, 10, 11 16 to 21 of the Ritchie et al. patent. However, as the Ritchie et al. patent neither expressly claims, nor in any manner suggests with specificity the invention now claimed for the reasons set forth *supra*, Appellant submits that this ground for rejection is unsupported and should be withdrawn.

Claims 1 to 4, 6 to 12, 14 to 16, 19 and 21 were rejected under 35 USC Section 103(a) as being unpatentable over US Patent No. 6,583,092 to Carrick et al. (hereinafter "the Carrick et al. patent") in view of U.S. Patent No. 5,207,938 to Nalesnik (hereinafter "the Nalesnik patent"). As noted, the rejection was made based, *inter alia*, on the assumption that "the dicarboxylic acid groups are viewed as a two separate moieties in the ratio of carboxylic acid producing moieties per polyalkenyl moiety", which applicants consider unreasonable, as discussed *supra*. However,

this interpretation is not critical with regard to the present rejection. The Carrick et al. patent describes lubricants in which dispersants may be used, which dispersants may or may not have the required polyalkenyl molecular weight and/or molecular weight distribution, and may, or may not have the required dispersant functionality. Further, the dispersant may or may not be present in an amount providing the requisite nitrogen content (in fact the presence of a dispersant is not even required by the claims of the Carrick et al. patent). Like the dispersant, the presence of a viscosity modifier is not required by the claims of the Carrick et al. patent and, when optionally present, may or may not be derivatized with a nitrogen-containing moiety. The Nalesnik patent describes certain high molecular weight polymers derivatized with nitrogen-containing moieties, but neither teaches or suggests that the use thereof, in combination with the presently claimed class of dispersants, provides any specific advantage in lubricating oil compositions.

The detailed comparative data of the present specification clearly demonstrates the improved performance in the industry standard "Mack T-11" test achieved with the claimed combination of dispersant and derivatized high molecular weight polymer in direct comparison with a greater than equivalent amount (in terms of nitrogen) of the claimed dispersant alone, or an even greater amount of a dispersant (again based on nitrogen) derived from a lower molecular weight polyalkenyl moiety (see Table 1, page 35). The test data of the specification further clearly demonstrates the improved performance of lubricants formulated with the claimed class of dispersant compared to dispersants having a functionality and/or molecular weight distribution outside the range of the present claims (see the data of Tables 2 and 3).

As previously noted, nothing in either of the cited prior art references would, in any manner, suggest that the use of a dispersant having the claimed molecular weight and functionality and/or molecular weight distribution, in combination with a derivatized high molecular weight polymer would provide any advantage over a greater than equivalent amount (based on nitrogen content) of a non-inventive dispersant; or a greater than equivalent amount (based on nitrogen content) of an inventive dispersant in the absence of the requisite derivatized high molecular weight polymer. Therefore, Appellant submits that the improved performance demonstrated by the test data of the specification must be considered both surprising and unexpected and that, in view of this demonstration of surprising and unexpected result any case of *prima facie* obviousness that may have been established, has been rebutted and the reversal of the rejection of claims 1 to 4, 6 to 12, 14 to 16, 19 and 21 presented under 35 USC Section 103(a) is respectfully requested.

Claims 5 and 13 were rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent and the Nalesnik patent, as described above, in further view of U.S. Patent No. 6,784,143 B2 to Locke et al. (hereinafter "the Locke et al. patent"); claim 17 was rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent and the Nalesnik patent, as described above, in further view of U.S. Patent No. 6,753,381 B1 to Mishra et al. (hereinafter "the Mishra et al. patent"); claim 18 was rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent, the Nalesnik patent, and the Mishra et al. patent, as described above, in further view of U.S. Patent No. 4,804,794 to Ver Strate et al. (hereinafter "the Ver Strate et al. patent"); and claims 20 and 22 were rejected under 35 USC Section 103(a) as being unpatentable over the Carrick et al. patent and the Nalesnik patent, as described above, in further view of U.S. Patent No. 4,286,567 to Ueda et al. (hereinafter "the Ueda patent").

Each of claims 5, 13, 17, 18, 20 and 22 is a dependent claim depending either directly or indirectly from claim 1 or claim 8. For the reasons noted above, the combination of the Carrick et al. patent and the Nalesnik patent fails to render obvious the subject matter of claims 1 and 8 and the deficiencies of the primary references are not cured by further reference to any of the Locke et al. patent, the Mishra et al. patent, the Ver Strate et al. patent the Ueda et al. patent, or any combination thereof. Thus, for the reasons set forth above, Appellant submits that all rejections presented under 35 USC Section 103(a) should be reversed.

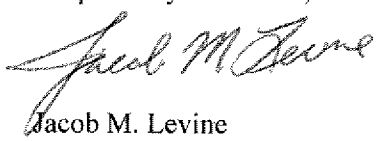
SUMMARY

For the foregoing reasons, Appellant submits that neither the combination of the Carrick et al. patent and the Nalesnik patent, nor the combination of the Carrick et al. patent and the Nalesnik patent in further view of any or all of the Locke et al. patent, the Mishra et al. patent, the Ver Strate et al. patent and the Ueda et al. patent, renders obvious the subject matter of Claims 1 through 22 under 35 USC 103(a). Appellants further submit that the Ritchie et al. patent cannot be properly cited against this application under 35 USC Section 102(e), and fails to anticipate the claimed invention under 35 USC Section 102. Accordingly, Appellant requests that the Examiner's decision to finally reject the claims of this application under 35 USC Section 103(a) and 35 USC Section 102(e) be reversed. Appellant further submits that the Ritchie et al. patent clearly fails to claim the same invention claimed in the present application and respectfully submits that the stated "obviousness-type double patenting rejection" is improper. A copy of an

amendment files subsequent to final rejection which, upon entry, will address all formal objections presented under 35 USC Section 112 is attached.

Appellant therefore requests that the decision to finally reject the present application based on all grounds for rejection discussed *supra* be reversed, and that the application now be passed to issue.

Respectfully submitted,



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APPENDIX TO BRIEF ON APPEAL

Sir:

The claims on appeal are as follows:

1. A lubricating oil composition comprising a major amount of at least one of a Group I, Group II or Group III mineral oil of lubricating viscosity, or a mixture thereof; a minor amount of one or more high molecular weight polymers comprising olefin copolymers containing at least one moiety selected from alkyl amine, alkyl amide, aryl amine or aryl amide groups, nitrogen-containing heterocyclic groups or ester linkages; and a minor amount of dispersant comprising one or more nitrogen-containing dispersants that are the reaction product of (i) a polyalkenyl-substituted mono- or dicarboxylic acid, a polyalkenyl-substituted anhydride or a polyalkenyl-substituted ester; and (ii) a polyamine; wherein at least one of the nitrogen-containing dispersants has a polyalkenyl moiety with a number average molecular weight of at least about 1800, and from about 1.3 to 1.7 mono- or dicarboxylic acid producing moieties per polyalkenyl moiety; and dispersant contributes at least about 0.08 wt. % of nitrogen to the lubricating oil composition.

2. A lubricating oil composition of claim 1, wherein said polyalkenyl moiety has a number average molecular weight of from about 1800 to about 3000.

3. A lubricating oil composition of claim 1, wherein the high molecular weight olefin copolymer comprises an ethylene-propylene copolymer grafted with maleic anhydride and derivatized with an aryl amine.

4. A lubricating oil composition of claim 2, wherein the total amount of diaryl amine moieties in the lubricating oil composition is from about 0.5 to 5 mmols/kg, and greater than about 50% of said diaryl amine moieties are derived from molecules having a number average molecular weight of greater than about 5000.

5. A lubricating oil composition of claim 1, further comprises from about 6 to about 50 mmols of phenate surfactant per kilogram of finished lubricating oil.

6. A lubricating oil composition of claim 5, wherein said dispersant comprises from about 1.3 to about 1.6 mono- or di-carboxylic acid producing moieties per polyalkenyl moiety, and has a boron content of less than about 20 ppm.

7. A lubricating oil composition of claim 1, having a sulfated ash content of less than about 0.5 wt. %.

8. A lubricating oil composition comprising a major amount of at least one of a Group I, Group II and/or Group III mineral oil of lubricating viscosity, or a mixture thereof; a minor amount of one or more high molecular weight polymers comprising olefin copolymers containing at least one moiety selected from alkyl amine, alkyl amide, aryl amine or aryl amide groups, nitrogen-containing heterocyclic groups or ester linkages; and a minor amount of dispersant comprising one or more nitrogen-containing dispersants that are the reaction product of (i) a polyalkenyl-substituted mono- or dicarboxylic acid, a polyalkenyl-substituted anhydride or a polyalkenyl-substituted ester; and (ii) a polyamine; wherein at least one of the nitrogen-containing dispersants has a polyalkenyl moiety with a number average molecular weight of at least about 1800, and is derived from a polyalkene having a molecular weight distribution (M_w/M_n) of from about 1.5 to about 2; said dispersant being essentially chlorine-free.

9. A lubricating oil composition of claim 8, wherein said polyalkenyl moiety has a number average molecular weight of from about 1800 to about 3000.

10. A lubricating oil composition of claim 8, wherein said dispersant contributes at least about 0.08 wt. % of nitrogen to the lubricating oil composition.

11. A lubricating oil composition of claim 8, wherein the high molecular weight olefin copolymer comprises an ethylene-propylene copolymer grafted with maleic anhydride and derivatized with an aryl amine.

12. A lubricating oil composition of claim 11, wherein the total amount of diaryl amine moieties in the lubricating oil composition is from about 0.5 to 5 mmols/kg, and greater than about 50% of said diaryl amine moieties are derived from molecules having a number average molecular weight of greater than about 5000.

13. A lubricating oil composition of claim 8, further comprising from about 6 to about 50 mmols of phenate surfactant per kilogram of finished lubricating oil.

14. A lubricating oil composition of claim 8, wherein said dispersant comprises from about 1.3 to about 1.6 mono- or di-carboxylic acid producing moieties per polyalkenyl moiety, and has a boron content of less than about 20 ppm.

15. A lubricating oil composition of claim 8, having a sulfated ash content of less than about 0.5 wt. %.

16. A lubricating oil composition of claim 8, having a sulfur content less than about 0.3 wt. %, a sulfated ash content of less than about 0.5 wt. %, and a chlorine content of less than about 50 ppm.

17. A lubricating oil composition of claim 8, wherein the functionalized, high molecular weight olefin molecule is derived from an amorphous ethylene-propylene copolymer, or a blend of an amorphous and a semi-crystalline ethylene-propylene copolymer with an SSI of from about 5 to about 30, produced by simultaneously shearing and functionalizing higher molecular weight ethylene-propylene copolymers, with maleic anhydride, in an extruder.

18. A lubricating oil composition of claim 17, wherein said semi-crystalline ethylene-propylene copolymer has a tapered structure and is produced in a tubular reactor.

19. A method of operating a diesel engine, which method comprises the step of lubricating a diesel engine with a lubricating oil composition of claim 1.

20. The method of claim 19, wherein said diesel engine is provided with an exhaust gas recirculation system.

21. A method of operating a diesel engine, which method comprises the step of lubricating a diesel engine with a lubricating oil composition of claim 8.

22. The method of claim 21, wherein said diesel engine is provided with an exhaust gas recirculation system.

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Washington, DC 20231

DECISION APPENDIX TO BRIEF ON APPEAL

Sir:

Attached please find true copies of all decisions rendered by a court or the Board in a proceeding identified in the Related Appeals and Interferences section of the brief:

NONE

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EVIDENCE APPENDIX TO BRIEF ON APPEAL

Sir:

Attached please find true copies of the evidentiary documents entered by the examiner and relied upon by appellant in the appeal:

NONE